

SUMMARY

Test Condition: 15V 60Hz for SL17

Criteria	Result
Total Lumen Output (lm)	22.5187
Total Power(W)	1.1218
Lamp Luminaire Efficacy (lm/W)	20.07
Power Factor	0.6406
Field Angle (°)	123.4
Correlated Color Temperature (CCT)	3121
Color Rendering Index (CRI)	96
Color Rendering Index (R ₉)	90
Fidelity Index (R _f)	95
Gamut Index (R _g)	99
Chromaticity Coordinate (x)	0.4331
Chromaticity Coordinate (y)	0.4108
Chromaticity Coordinate (u')	0.2452
Chromaticity Coordinate (v')	0.5234
In-situ Case Temperature of LED/COB (°C)	35.8
Drive Current of LED/COB (mA)	100
Projection Life Time, Reported L70 (hours)	>54000

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EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Fluke Temperature Meter	52	EC2357
Everfine- DC Power Supply	WY12010	EC4753-7
Everfine- AC power source for Integrating Sphere System	VPS1010 PWM	EC4760-12
Everfine - AC power source for Goniophotometer System	VPS1060 PWM	EC4753-8
Two meter integrating sphere unit	Everfine – 2M	EC4760
Everfine - Digital Power Meter	PF2010A	EC4760-10
YOKOGAWA - Digital Power Meter	WT210	EC4553
Everfine – Goniophotometer	Go-R5000	EC4753
Draught-proof enclosure	N/A	EC2201
Agilent - Data Acquisition Unit	34970A	EC2043
QINGZHI - Power Meter	8770A	EC2652
YOKOGAWA - Digital Power Meter	WT-210	EC4553

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TEST METHOD

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79

Light Distribution and Output Measurements

Light Distribution and total light output (luminous flux) were measured using a Go-R5000 Type-C Rotating Mirror Goniophotometer. Temperature 25°C and relative humidity of 60% was measured at a position in the testing laboratory.

The lamp rotates only around the fixed vertical axle in the prescribed burning position. The lamp and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the lamp. The lamp was allowed to stabilize before measurements were made.

Chromaticity Measurements

Chromaticity was measured using a 2 meters integrating sphere spectral lamp measurement system. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using spectroradiometer attached to the detector port of the integrating sphere. Each lamp was allowed to stabilize before measurements were made. The calibration of the integrating sphere spectroradiometer system is by the reference/standard lamps which are traceable to National Institute of Metrology P.R. CHINA. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using YOKOGAWA - Digital Power Meter., model WT210.

Standard lamp used:

Model: Labsphere SCL-1400

Current: 2.679A

Temperature Measurement Test

The sample was operated at 25±5°C until constant temperatures were obtained. A temperature was considered constant if sample was operating for at least three hours and upon three successive readings-taken at 15 minutes intervals- were within one degree and were not rising.

Thermocouples were attached at locations described in the results by means of epoxy.

Driver current Measurement Test

During the temperature measurement test, measure the forward current for each LED package/array/module.

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RESULTS OF TESTS

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Total operation burning time: 70 min

Stabilization time: 60 min

Photometric Measurements at 25°C

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
SL17							
A240906-22-001	N/A	3121	96	0.4331	0.4108	0.2452	0.5234

Photometric and Electrical Measurements at 25°C

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (A)	Lamp Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
SL17							
A240906-22-001	N/A	15.0	0.1165	1.1218	0.6406	22.5187	20.07

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
SL17		
0-30	0.9534	4.23
0-40	2.284	10.1
0-60	7.492	33.3
0-90	20.51	91.1
0-180	22.52	100.0

Beam Angle

	Horizontal Spread (°)	Vertical Spread (°)
SL17		
Beam (50%)	157.3	59.3
Beam Angle	108.3	

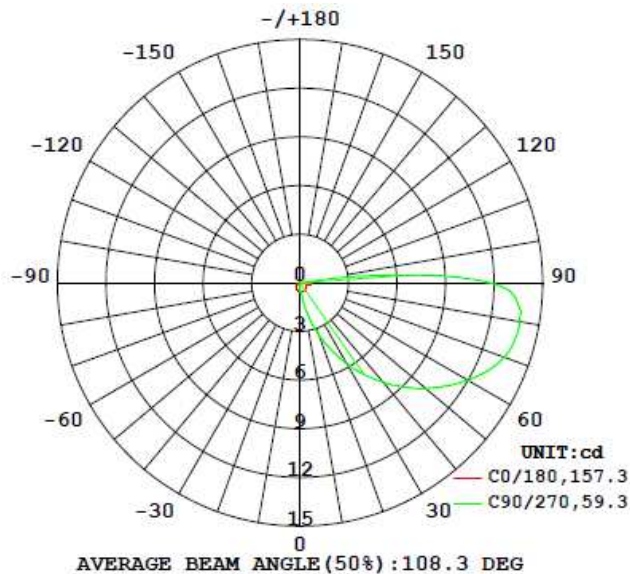
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RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary at 25°C – Candelas

Test Condition: 15V 60Hz for SL17

G \ C(°)	0	22.5	45	67.5	90
0	0.541	0.541	0.541	0.541	0.541
5	0.546	0.568	0.586	0.598	0.600
10	0.549	0.592	0.674	1.026	1.141
15	0.548	0.615	1.463	2.116	2.293
20	0.545	0.947	2.309	3.176	3.422
25	0.539	1.460	3.136	4.239	4.559
30	0.530	1.947	3.952	5.297	5.742
35	0.516	2.409	4.756	6.418	6.897
40	0.499	2.857	5.572	7.470	8.009
45	0.479	3.292	6.409	8.481	9.081
50	0.455	3.706	7.159	9.440	10.110
55	0.425	4.111	7.879	10.359	11.080
60	0.391	4.495	8.549	11.234	12.001
65	0.390	4.855	9.203	12.015	12.802
70	0.475	5.178	9.821	12.617	13.433
75	0.559	5.533	10.293	12.927	13.733
80	0.613	5.974	10.348	12.954	13.773
85	0.643	5.917	10.024	12.696	13.470
90	0.648	5.357	9.162	11.328	11.782



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RESULTS OF TESTS (cont'd)

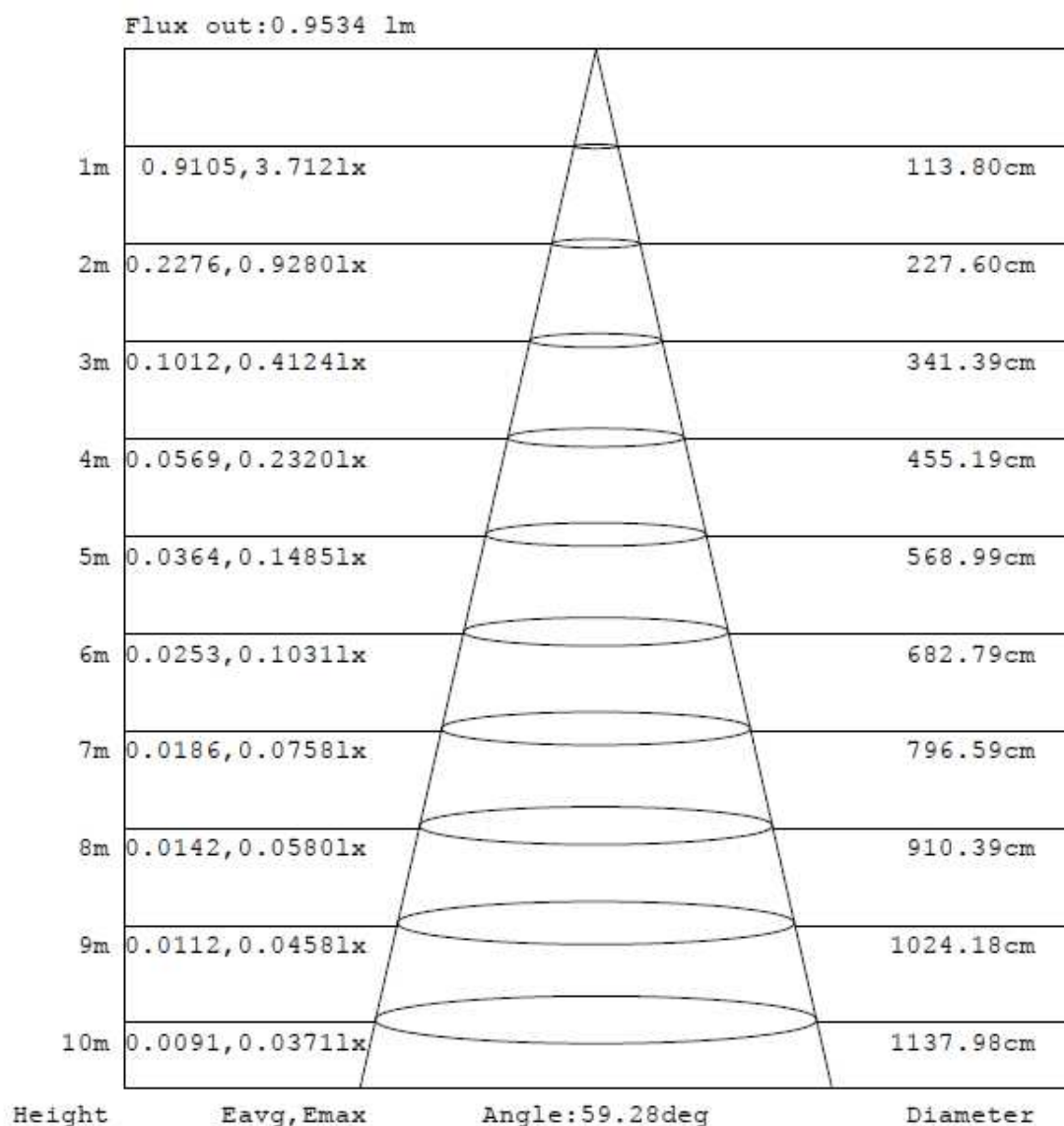
Test Condition: 15V 60Hz for SL17

Illumination Plots

Model No.: SL17

Mount Height: 10 m

Illuminance - Cone of Light



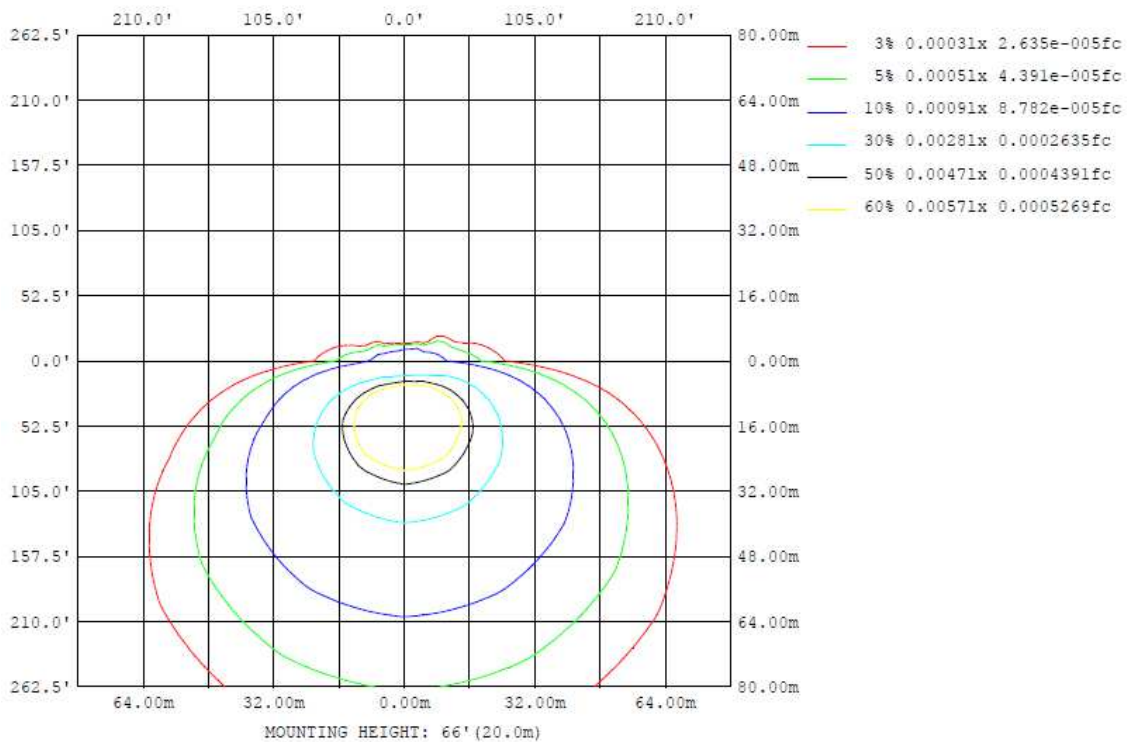
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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RESULTS OF TESTS (cont'd)

Test Condition: 15V 60Hz for SL17

Model No.: SL17
Mount Height: 20 m
Isoillumination Plot



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RESULTS OF TESTS (cont'd)

Test Condition: 15V 60Hz for SL17

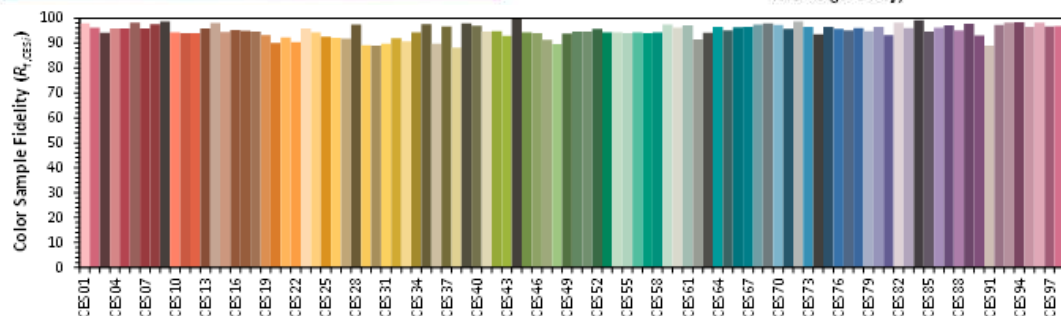
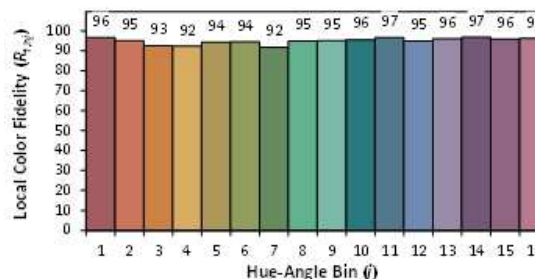
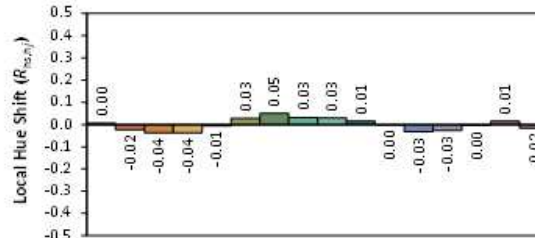
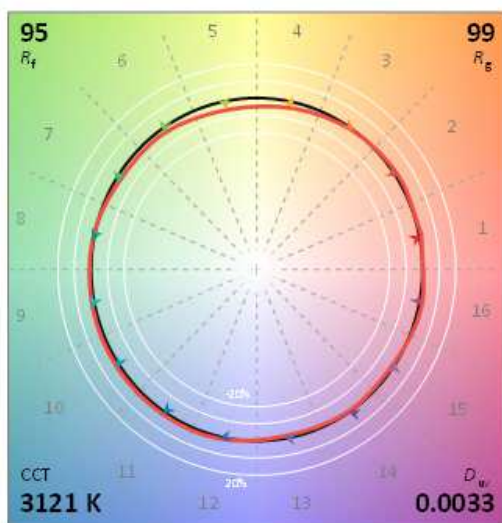
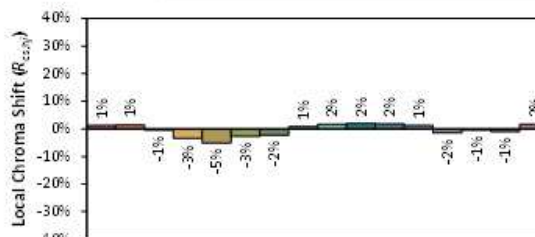
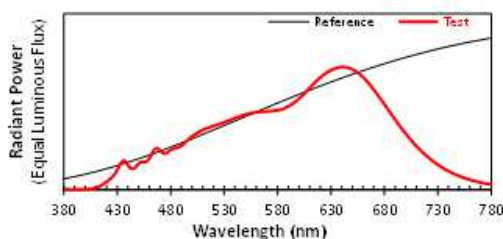
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: Hengdian Group

Date: 3/8/2023

Model: TP-G2-DOBUHB-240-5000K



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4331
y 0.4108
u' 0.2452
v' 0.5234

CIE 13.3-1995
(CRI)
Ra 96
R9 90

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RESULTS OF TESTS (cont'd)

IN SITU TEMPERATURE MEASUREMENT TEST

Test condition Input Voltage - 15Vac 60Hz

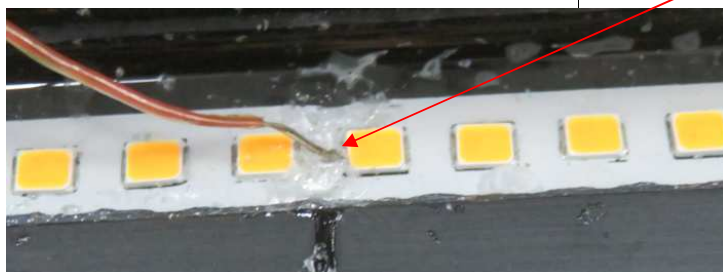
Ambient temperature: $25\pm 5^{\circ}\text{C}$, Relative Humidity: 50%

Test Model: SL17

LED model name: BXEN-27S-13H-9C

LED manufacturer: Bridgelux Inc.

Test Location:



TMP of
LED

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RESULTS OF TESTS (cont'd)

IN SITU TEMPERATURE MEASUREMENT TEST

Test Results of LED chip temperature and current

TMP led: BXEN-27S-13H-9C	
In-situ case temperature of LED source (°C)	Limit single led chip temperature(°C)
35.8	105
Measured Drive current for each LED package/array/module (mA)	Limit single led chip current (mA)
100	120

Note: In-situ case temperature was corrected to ambient temperature at 25°C in above table.

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